# The International Journal of Biochemistry

EDITOR G. A. KERKUT

**ASSISTANT EDITOR IAN GILES** 

List of Contents and Author Index Volume 19, 1987



PERGAMON PRESS

OXFORD NEW YORK BEIJING FRANKFURT SÃO PAULO SYDNEY TOKYO TORONTO

## The International **Journal of Biochemistry**

#### **EDITOR**

Professor G. A. KERKUT, Department of Physiology and Biochemistry, University of Southampton, Southampton SO9 3TU, England Tel. (0703) 559122

#### ASSISTANT EDITOR

Dr IAN GILES, Department of Physiology and Biochemistry University of Southampton, Southampton SO9 3TU, England

#### HONORARY EDITORIAL ADVISORY BOARD

D. BALINSKY (Washington)
A. M. DEL C. BATLLE (Buenos Aires)

D. BIESOLD (Leipzig)

J. W. CAMPBELL (Houston)

R. A. CAPALDI (Eugene) P. COHEN (Wisconsin)

P. FRIEDRICH (Budapest)

P. CUATRECASAS (North Carolina)

I. C. GUNSALUS (Urbana)

R. H. HASCHEMEYER (New York)

S. MINAKAMI (Fukuoka)

T. OZAWA (Nagoya) M. ROTHSTEIN (Buffalo)

M. SCHLESINGER (St Louis)

K. J. SCHRAY (Bethlehem, Pennsylvania)

J. D. WOOD (Saskatchewan) V. ZHIVKOV (Sofia)

Publishing Office: Journals Production Unit, Pergamon Journals Ltd, Hennock Road, Marsh Barton, Exeter EX2 8NE,

England (Tel. Exeter (0392) 51558; Telex 42749) Subscription and Advertising Offices-North America: Pergamon Journals Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.

Rest of the World: Pergamon Journals Ltd, Headington Hill Hall, Oxford OX3 0BW, England (Tel. Oxford (0865) 64881)

#### **Annual Subscription Rates 1988**

Annual institutional subscription rate (1988) DM 1175.00; two-year institutional rate (1988/89) DM 2232.50; personal subscription rate for those whose library subscribes at the regular rate DM 185.00. Prices are subject to amendment without

#### Microform Subscriptions and Back Issues

Back issues of all previously published volumes are available in the regular editions and on microfilm and microfiche. Current subscriptions are available on microfiche simultaneously with the paper edition and on microfilm on completion of the annual index at the end of the subscription year.

#### Published monthly. Copyright © 1987 Pergamon Journals Limited

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

#### Photocopying information for users in the U.S.A.

The Item-fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid, The appropriate remittance of \$3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970, U.S.A.

The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

The Item-fee Code for this publication is: 0020-711X/87\$3.00+0.00

### CONTENTS OF VOLUME 19

Vol. 19, No. 1

Minireview		
Paul A. Friedman and Craig T. Przysiecki	1	Vitamin K-dependent carboxylation
General Papers		
Fritz H. H. Carlsson and Abraham I. Louw	9	Properties of some 3-nitrotyrosyl elapid venom cardiotoxins
C. Somló and A. Hassón-Voloch	17	Effect of $Li^+$ and $Ba^{2+}$ on the electrocyte membrane-bound $(Na^+ + K^+)\text{-}ATPase$
Susan J. Sulakhe and W. Wayne Lautt	23	A characterization of $\gamma$ -glutamyltranspeptidase in normal, perinatal, premalignant and malignant rat liver
Richard J. Wicks and Richard C. Clark	33	Hen vitellogenin genes: a study of the distribution of phosvitin phosphoprotein coding sequences using mRNA hybridization with synthetic complementary oligonucleotide probes
Hidenari Shigematsu and Yasuo Kishimoto	41	$\alpha\textsc{-Hydroxylation}$ of lignoceroyl-CoA by a cyanide-sensitive oxygenase in rat brain microsomes
M. T. Gaunt and R. E. Huber	47	The inactivation of $\beta$ -galactosidase (E. coli) by the carbo-diimide reaction
Fariba Pour-Rahimi and Mohsen Nemat-Gorgani	53	Reversible association of ox liver glutamate dehydrogenase with the inner mitochondrial membrane
Stephen P. Collins, Mark D. White and Michael A. Denborough	63	Calmodulin in porcine malignant hyperpyrexia
Abdelrahim A. Hunaiti and Mohammed A. A. Sarhan	71	Purification and characterization of camel liver glutathione S-transferase
Brune Christ and Dietrich Sedlmeier	79	Variations in epidermal cyclic nucleotide-dependent protein kinase activity during moult cycle of the crayfish <i>Orconectes limosus</i> and hormonal control of kinase activity by 20-hydroxyecdysone
J. Suárez, V. E. Valles and V. Chagoya de Sánchez	85	Effect of adenosine on the serum levels of glucose, insulin and glucagon $in\ vivo$
M. Lampropoulou, A. Zacharopoulou, S. Tsakas, K. Barlos, D. Papaioannou, S. Patrianakou and V. J. Marmaras	89	Effect of O-allyl-hydroxy amino acids on protein synthesis and secretion by cultured fat body and salivary glands in the fruit fly Ceratitis capitata
Antonio Sanchez-Bueno, María J. Sancho, Miguel Trueba and José M. Macarulla	93	An early effect of estradiol at hepatic level, previous to its protein synthesis activation
Yury G. Kaminsky and Elen A. Kosenko	97	Different effects of 2,4-dinitrophenol on rat liver mitochondrial oxidation of various substrates: succinate and glutamate vs 3-hydroxybutyrate and glycerol 3-phosphate
		iii ·

		Vol. 19, No. 2
Review Harold F. Deutsch	101	Carbonic anhydrases
General Papers Nobuhiro Mori, Toshiaki Nikai and Hisayoshi Sugihara	115	Phosphodiesterase from the venom of Crotalus ruber ruber
Takeshi Yamamoto, Michio Nojima, Mari Yamamoto, Shoichi Ishiura and Hideo Sugita	121	Effect of phosphatidyl-L-serine and vinculin on actin polymerization
José M. del Rio and Claudio F. Heredia	127	Inactivation of yeast nucleotidyl transferase and its effect on the integrity of the aminoacid acceptor end of transfer RNA
Krishan K. Arora, John P. Longenecker and John F. Williams	133	Mechanism and quantitative contribution of the pentose pathway to the glucose metabolism of Morris Hepatoma 5123C
Krishan K. Arora, Robin Smith and John F. Williams	147	"Pyruvate recycling" and its influence on the estimation of the pentose pathway in intact liver and Morris Hepatoma 5123TC cells
Emil N. Nikolov, Bistra B. Dineva, Mariana D. Dabeva and Todor K. Nikolov	159	Turnover of ribosomal proteins in regenerating rat liver after partial hepatectomy
Louise Verschuer and Leigh C. Ward	165	Failure of a branched chain amino acid-enriched diet to reverse ethanol inhibition of cardiac protein synthesis in the rat
Marie Bogoyevitch, Roger Mitchell, Leigh C. Ward and Steven Mason	173	Ethanol and leucine oxidation—III. Leucine oxidation by rat heart in vitro
D. L. Bakkeren, C. M. H. de Jeu-Jaspars, M. J. Kroos and H. G. van Eijk	179	Release of iron from endosomes is an early step in the transferrin cycle
Vasily D. Antonenkov, Vladimir A. Gusev and Leonid F. Panchenko	187	Effect of clofibrate treatment on glutathione content and the activity of the enzymes related to peroxide metabolism in rat liver and heart
Trine B. Haugen, Per Fritzson and Vidar Hansson	193	Cellular localization and developmental changes of deoxyribo- nucleoside-activated nucleotidase in the rat testis
Enrico Grazi and Giorgio Trombetta	197	Fructose bisphosphate aldolase from rabbit muscle. A jump in the van't Hoff plot accompanies the onset of half of the sites' reactivity
Joaquín Jiménez, Angustias Page-Peñuelas, Manuel Ros, Josefa P. García-Ruíz and Francisco J. Moreno	201	Glycerogenic pathway in the rat mammary gland
J. H. Veerkamp and A. J. M. Wagenmakers	205	Postnatal development of the actual and total activity of the branched-chain 2-oxo acid dehydrogenase complex in rat tissues
Masataka Yoshino and Keiko Murakami	209	Quantitative structural activity relationship studies on the activation of yeast AMP deaminase by polyamines
C. Le Q. Darcel	213	On the heterogeneity of serum albumin: effect of sodium dodecyl sulphate on agarose chromatography of the protein
Elba Vazquez, Ana Maria Buzaleh, Eva Wider and Alcira M. Del C. Batlle	217	Red blood cell rhodanese: its possible role in modulating $\delta$ -aminolaevulinate synthetase activity in mammals

		VOI. 19, NO. 3
Toshiaki Nikai, Masumi Niikawa, Yumiko Komori, Seiichiro Sekoguchi and Hisayoshi Sugihara	221	Proof of proteolytic activity of hemorrhagic toxins, HR-2a and HR-2b, from <i>Trimeresurus flavoviridis</i> venom
Umberto Ferrini, Anna Maria Mileo and Vincent J. Hearing	227	Microheterogeneity of melanosome-bound tyrosinase from the Harding-Passey murine melanoma
Christine Challen and David H. Adams	235	The assembly of the DNA complex present in chick embryo cell cytosol
K. L. Manchester	245	eIF-2B and the exchange of guanine nucleotides bound to eIF-2
Jean-Pierre Iliou and Yves Demarne	253	Evolution of the sensitivity of isolated adipocytes of ewes to the lipolytic effects of different stimuli during pregnancy and lactation
R. Lyle Christensen, Debra L. Shade, C. Bruce Graves and Jay M. McDonald	259	Evidence that protein kinase C is involved in regulating glucose transport in the adipocyte
Anneli Jauhiainen and Tapani Vanha-Perttula	267	Characterization of acid and neutral $\alpha$ -mannosidases in bull semen and reproductive organs
Federico Martínez, Edmundo Chávez and Soledad Echegoyen	275	Decreased exchange of adenine nucleotides in human placental mitochondria
L. Vittozzi, G. De Angelis and V. Silano	281	Solvent perturbation spectra of yellow mealworm $\alpha\text{-amylase}$ and of wheat protein inhibitors
Jolanta M. Dzik	285	The relationship between the rate of glutamate deamination and long-chain acyl-CoA accumulation in kidney cortex mito-chondria of rabbit
D. H. Petkova, A. B. Momchilova, T. T. Markovska and K. S. Koumanov	289	p-Galactosamine induced changes in rat liver plasma membranes lipid composition and some enzyme activities
Book Reviews	293	
		Vol. 19, No. 4
Minireviews		
C. Le Q. Darcel	295	On the heterogeneity of serum albumin
Tetsuya Matsuno	303	Bioenergetics of tumor cells: glutamine metabolism in tumor cell mitochondria
General Papers		
Rolf A. Løvstad	309	Copper catalyzed oxidation of ascorbate (vitamin C). Inhibitory effect of catalase, superoxide dismutase, serum proteins (ceruloplasmin, albumin, apotransferrin) and amino acids
Claude Rimington, Stein Sommer and Johan Moan	315	
Bo-Gui Wen and Jen-Fu Chiu	321	Monoclonal antibodies to nonhistone proteins associated with human colon cancer nuclear matrix
Claudete Deguirmendjian Rosa, Rubens Rosa, Edson Rodrigues, Dario Ocampos, Laudinor de Vuono and Metry Bacila	329	Metabolic activity of the Sticker's lymphosarcoma

C. S. Tsai and J. R. P. Godin	337	Multifunctional activities of yeast glutathione reductase
Pilar Benedicto, Jorge Beleta and F. Javier Gella	345	Purification and characterization of two phosphorylase phosphatases from rabbit liver
M. Gil, M. Cascante, A. Cortés and J. Bozal	355	Intramitochondrial location and some characteristics of chicken liver aspartate aminotransferase
María del Carmen Ríos de Molina, Rosa Wainstok de Calmanovici and Leonor C. San Martín de Viale	365	Liver porphyrinogen carboxylase in hexachlorobenzene porphyric rats. Studies with intermediate porphyrinogens of series III and with uroporphyrinogen I
Gerardo Enrique Koopmann and Alcira Maria del C. Batlle	373	Biosynthesis of porphyrins in <i>Rhodopseudomonas palustris</i> —VI. The effect of metals, thiols and other reagents on the activity of uroporphyrinogen decarboxylase
Alberto A. Viale, Eva A. Wider and Alcira M. del C. Batlle	379	Porphyrin biosynthesis in Rhodopseudomonas palustris—XII. $\delta$ -Aminolevulinate synthetase switch—off/on regulation
Premkala Prasanna and Chester E. Holmlund	385	Identification in <i>Tetrahymena pyriformis</i> of 3-hydroxy-3-methyl glutaryl coenzyme A lyase: its purification and properties
Robert J. Foster and P. E. Kolattukudy	391	Enzymatic hydrolysis of diethylpyrocarbonate, a commonly used histidine modifying agent, by esterases
B. Colin, M. Bernard, M. J. Foglietti and F. Percheron	395	$\beta$ -D-Mannosidase in human polymorphonuclear leukocytes and lymphocytes: a comparative study
Book Reviews	399	
		Vol. 19, No. 5
Shin-Ichiro Takahashi, Hisanori Kato, Atsushi Takahashi, Tadashi Noguchi and Hiroshi Naito	401	Mode of action of bestatin and leupeptin to induce the accumulation of acid soluble peptides in rat liver in vivo and the properties of the accumulated peptides. The important role of bestatin- and leupeptin-sensitive proteases in the protein degradation pathway in vivo
Howard H. T. Hsu, Jim Rouse, James Hamilton and H. Clarke Anderson	413	Purification and partial amino acid sequencing of bovine kidney alkaline phosphatase
Luc Steen, Guido Van Dessel, Marc De Wolf, Albert Lagrou, Herwig Hilderson and Wilfried Dierick	419	Characterization of dolichol kinase from bovine thyroid microsomes
Luc Steen, Guido Van Dessel, Marc De Wolf, Albert Lagrou, Herwig Hilderson and Wilfried Dierick	427	Identification and characterization of a specific dolichylmono- phosphate phosphatase activity in bovine thyroid microsomes
Yoshimi Yamamoto and Kenji Nishimura	435	Copurification and separation of $\beta$ -galactosidase and sialidase from porcine testis
Susanna S. C. Wong and Paschalis T. L. Woo	443	Stimulation by glucagon and adenosine-3',5'-cyclic mono- phosphate of protein degradation in Reuber H35 hepatoma monolayers

449 Kinetic studies of four enzyme forms of  $(\beta$ -N-acetyl-hexosaminidase from embryonic chicken brain

J. A. Rodríguez-Hernández, J. Martín-Barrientos, C. Sánchez-Bernal and J. A. Cabezas

Kwang Sook Park, Sangduk Kim and Woon Ki Paik	455	Histone binding to isolated rat liver nuclei
Carolyn M. Klinge and Dai Kee Liu	461	An endogenous protein inhibitor of DNA polymerase $\alpha$ in
		normal and neoplastic rat mammary tissues
J. Velema, F. T. M. van Amsterdam and J. Zaagsma	467	Separation and characteristics of inside-out and right side-out vesicles from a rat cardiac sarcolemma preparation
S. C. Dogra and L. G. israels	471	Vitamin $K_1$ amplification of benzo(a)pyrene metabolism in chick embryos
Colin S. Jones and Ray Manning	475	Glucose kinetics in the oestrogen-treated male chicken (Gallus domesticus), measured after administration of [6-3H]glucose and [U-14C]glucose in vivo
Anna B. Wojtczak and Wil I. A. Davis-van Thienen	479	Stimulation of mitochondrial functions by glucagon treatment, starvation and by treatment of isolated mitochondria with glycogen-bound enzymes
Don A. Cowan, Roy M. Daniel and Hugh W. Morgan	483	Some observations on the inhibition and activation of a thermophilic protease
Book Reviews	487	
		Vol. 19, No. 6
Yasuko Shibata, Yoshimitsu Abiko, Hiroshi Arii, Masayuki Sone and Hisashi Takiguchi	489	Rapid procedure for preparation of macrophage plasma membrane
Rune Djurhuus, Ole Didrik Laerum and Johan R. Lillehaug	495	Ornithine decarboxylase activity in foetal rat brain cells and in the mouse embryo fibroblasts C3H/10T1/2 CL8 cells: differences in response to medium change and to the tumor promotor TPA
Hiroshi Munakata, Ken Satoh, Masashi Kosakai, Junichiro Aikawa, Mamoru Isemura, Zensaku Yosizawa, Norio Hayashi and Masakichi Motomiya	503	Isolation and characterization of a mucin-type glycoprotein from the lung lavage of a patient with alveolar proteinosis
Susan J. Sulakhe	509	γ-Glutamyltranspeptidase in dimethylbenz[a]anthracene- induced mammary adenocarcinomas and in livers of tumor bearing rats
Anatoly Bezkorovainy, Leslie Solberg, Mark Poch and Robin Miller-Catchpole	517	Ferrous iron uptake by Bifidobacterium bifidum var. pennsylvanicus: the effect of metals and metabolic inhibitors
Vasek A. Mezl and Nora Cutcliffe	523	Decreased ratio of $\alpha$ - to $\beta$ -globin mRNA in reticulocyte membrane RNA
Janusz Z. Byczkowski and Teresa Gessner	531	Effects of superoxide generated in vitro on glucuronidation o benzo[a] pyrene metabolites by mouse liver microsomes
Callum J. Campbell and Milton V. Park	539	The role of the available sulphydryl group in liver butyryl coenzyme A synthetase
Kwok-Ming Yao and Wang-Fun Fong	545	Ornithine decarboxylase from <i>Tetrahymena thermophila</i> purification, reversible modification and multiple forms
Wiesława Szyja, Antoni Wrzosek, Bozena Korczak and M. Gabriela Sarzała	551	Characterization of Mg <sup>2+</sup> -ATPase from slow-twitch muscle membranes

Helga Guderley and Line Jacques	561	Liver specific pyruvate kinase in pheasants $\it Phasianus\ colchicus$
Jadwiga Purzycka-Preis and Mariusz M. Żydowo	565	Regulatory effect of pig heart phospholipids on heart muscle AMP-deaminase
V. Tz. Hinkovska, A. B. Momchilova, D. H. Petkova and K. S. Koumanov	569	Phospholipase A2 activity in ram spermatozoa plasma membranes
Book Reviews	573	
		Vol. 19, No. 7
Roberta J. Oshinsky and Henry W. Strobel	575	Distributions and properties of cytochromes P-450 and cytochrome P-450 reductase from rat colon mucosal cells
Katsuhiro Yamamoto	589	Immunochemical analysis of porcine cardiac C-protein
J. Castro, A. Maquedano and M. Guzmán	595	Short and long term effects of ethanol on glycerolipid synthesis from palmitate in fasted rat hepatocytes
François J. Joubert, E. H. Merrifield and E. B. D. Dowdle	601	The reactive sites of proteinase inhibitors from Erythrina seeds
Jiann-Wu Wei and Edward K. Wang	607	Effects of calcium ionophore A23187 and calcium antagonists on <sup>32</sup> P <sub>i</sub> incorporation into polyphosphoinositides of rat cortical synaptosomes
Pierre Boivin, Colette Galand and Olivier Bertrand	613	Protein band 3 phosphotyrosyl phosphatase. Purification and characterization
M. J. H. Geelen, A. C. Beynen and K. W. A. Wirtz	619	Cholesterol metabolism and sterol carrier protein-2 (non-specific lipid transfer protein)
Frank Barry and Shawn Doonan	625	Stability to sodium dodecyl sulphate of the proteinase from Armillaria mellea: use for fragmentation of insoluble proteins
Bertil G. Ohlsson, Björn R. Weström and Börje W. Karlsson	633	Identification and characterization of eight porcine pancreatic proteinases, carboxypeptidase A and amylase after electrophoretic separation using specific substrates
Marianne Andersson, Per Inge Christensson, Lillemor Lewan and Unne Stenram	641	Isotachophoretic and HPLC determination of nucleotides in rat liver cell nuclei isolated by non-aqueous technique
Rolf A. Løvstad	649	Interaction of promazine with human ceruloplasmin
Pierre Broquet, Ambroise Martin, Marie-Jo Peschard, Hélène Baubichon-Cortay, Mireille Serres-Guillaumond and Pierre Louisot	653	Study of circadian correlations between acetylcholine mus- carinic receptor and brain glycosyltransferases by multivariate analysis
V. Dombrádi, P. Friedrich and G. Bot	657	Effect of ligands on <i>Drosophila</i> phosphorylase a as monitored by its enzymic inactivation
Book Reviews	661	
		Vol. 19, No. 8
Florentina N. Muralidharan	663	Phytanic acid alpha oxidation in rat liver: studies on alpha
and V. B. Muralidharan	303	hydroxylation
Halil Gültekin, Keisuke Horitsu and Götz F. Domagk	671	Calcium binding proteins: purification of hepatocalcin-55 from bovine liver

M. A. Juarez-Oropeza,	679	In vivo and in vitro studies of hypocholesterolemic effects of
Juan C. Diaz-Zagoya and Joseph L. Rabinowitz		diosgenin in rats
	605	Heteropresity of said 0 coloresides from white hide
María Páez de la Cadena, José A. Cabezas	083	Heterogeneity of acid $\beta$ -galactosidase from rabbit kidney
and M. Nieves Pérez-González		
M. N. Diez-Blanco, J. Sanchez-Yagüe, J. A. Cabezas and M. Llanillo	693	Isolation, characterization and phospholipid composition of lamellar bodies and subcellular fractions from dog lung
Stefania Gini, Cinzia Simonelli and Pier Luigi Ipata	699	Studies on IMP degradation and ribose 1-phosphate utilization in human erythrocytes
Maria Pilarska, Sławomir Pikuła, Grażyna Szymańska and M. Gabriela Sarzała	705	Properties and topology of enzymes methylating phosphatidyl- ethanolamine to phosphatidylcholine in sarcoplasmic reticulum
Theodore Page and William L. Nyhan	713	Metabolism of leucine in fibroblasts with defects in the leucine catabolic pathway
Alcira M. del C. Batlle, Haydee Fukuda, Victoria Estela Parera, Eva Wider and Ana Maria Stella	717	In inherited porphyrias, lead intoxication is a toxogenetic disorder
G	721	E d. 1
Clement O. Bewaji and Enitan A. Bababunmi	721	Further characterization of the membrane-bound (Ca <sup>2+</sup> + Mg <sup>2+</sup> )-ATPase from porcine erythrocytes
S. Colombatto, D. C. Pezzali and M. A. Grillo	725	Selenium and polyamine metabolism: different effect of selenite on liver and bursa of Fabricius ornithine decarboxylase activity
Marja A. Rimpiläinen	729	Properties of the $N,N'$ -dicyclohexylcarbodiimide resistant ATPase of $Streptococcus$ $cremoris$
Francine Malaisse-Lagae and Willy J. Malaisse	733	Anomeric specificity of p-glucose phosphorylation and oxidation in human erythrocytes
Lilla Lachowicz and Grażyna Janiszewska	737	A comparison of the effects of substance P and shorter analogues on the synaptosomal ATPase activities in the rat brain
Don A. Cowan, Roy M. Daniel and Hugh W. Morgan	741	The specific activities of mesophilic and thermophilic protein- ases
Marianne Andersson, Per Inge Christensson, Lillemore Lewan and Unne Stenram	745	Variation of incorporation of [3H]orotic acid into the nucleo- tide and RNA fractions of different parts of the same liver lobe in the rat
New Patents Section	i	
		W. 10 W. 4
Parism.		Vol. 19, No. 9
Review  John F. Williams, Krishan K. Arora and John P. Longenecker	749	The pentose pathway: a random harvest [Impediments which oppose acceptance of the classical (F-type) pentose cycle for liver, some neoplasms and photosynthetic tissue. The case for the L-type pentose pathway]
General Papers		
Stephen P. Collins, Mark D. White and Michael A. Denborough	819	The effects of calmodulin antagonist drugs on isolated sarco- plasmic reticulum from malignant hyperpyrexia susceptible swine
		iv

Alistair T. R. Sim, Mark D. White and Michael A. Denborough	827	The effects of chlorbutol on skeletal muscle sarcoplasmic reticulum function in porcine malignant hyperpyrexia
Ian A. Dubery, Braam Viljoen and Johannes C. Schabort	831	The effect of γ-radiation on the NADP-malic enzyme from mango fruit, Mangifera indica—I. Physico-chemical aspects
Braam Viljoen, Ian A. Dubery and Johannes C. Schabort	837	The effect of $\gamma$ -radiation on the NADP-malic enzyme from mango fruit, <i>Mangifera indica</i> —II. Kinetic and regulatory properties
S. Sarhan, B. Knodgen, F. Gerhart and N. Seiler	843	Chain-fluorinated polyamines as tumor markers—I. <i>In vivo</i> transformation of 2,2-difluoroputrescine into 6,6-difluorospermidine and 6,6-difluorospermine
E. Malle, H. J. Leis and W. Palm	853	Comparative studies on partial microsequence-analysis of Bence-Jones proteins
Sofia A. Kouidou, Athanasios A. Triantos, Georgios E. Papageorgiou, Evangelos M. Kavoukopoulos, Norma A. Vavatsi and Antonios C. Trakatellis	857	Single-strand-specific nuclease from rat liver endoplasmic reticulum: characterization and mode of action
Heahyun Yoo and Eugene T. McGuinness	865	Pig brain aldose reductase: purification, significance of the amino acid composition, substrate specificity and mechanism
José A. Teruel and Juan C. Gómez-Fernández	873	Structural properties of sarcoplasmic reticulum Ca <sup>2+</sup> -ATPase as studied by intrinsic protein fluorescence
Susan P. Williams, Russel P. Newton and Eric G. Brown	879	Analysis of the effects of ethanol, fructose and nicotinamide on the free nucleotides of rat liver using high performance liquid chromatography
Book Reviews	885	
		Vol. 19, No. 10
Minireview		
Leigh C. Ward	887	Ethanol and protein and amino acid metabolism in heart
General Papers		
Luis Menéndez-Arias, Rafael I. Monsalve, José G. Gavilanes and Rosalía Rodríguez	899	Molecular and spectroscopic characterization of a low molecular weight seed storage protein from yellow mustard (Sinapis alba L.)
M. T. Rinaudo, M. Curto, R. Bruno, C. Marino, V. Rossetti and M. Mostert	909	Evidence of an insulin generated pyruvate dehydrogenase stimulating factor in rat brain plasma membranes
Fritz H. H. Carlsson	915	The selective S-alkylation of a methionine residue in an elapid venom cardiotoxin
Fumiyo Sako, Shinsei Gasa and Akira Makita	923	Characterization of neutral glycosphingolipids from porcine erythrocyte membranes
Carlo Guarnieri, Flavio Flamigni, Silverio Rizzuto, Isabella Vaona and Claudio M. Caldarera	931	Altered thiol group status in the heart ornithine decarboxylase inactivated following perfusion with $t$ -butylhydroperoxide
Cilland III. Salantia		

G. Wu and J. R. Thompson

937 Ketone bodies inhibit leucine degradation in chick skeletal muscle

A. N. Belcastro	945	Myofibril and sarcoplasmic reticulum changes during muscle development: activity vs inactivity
C. Tertrin-Clary, M. C. Chenut and P. de la Llosa	949	Activation of a cyclic nucleon hosphodiesterase and of a protein kinase by control woulded calmodulin
Miguel Trueba, José María Guantes, Ana Isabel Vallejo, María José Sancho, Aida Marino and José María Macarulla	957	Characterization of cathering sites in chicken liver plasma membrane
Dimcho R. Bachvarov, George G. Markov and Ivan G. Ivanov	963	Sequence heterogeneity of the human alphoid satellite DNA and thermal stability of mismatched alphoid DNA duplexes
Boris Českis, Henrikas Šebeka, Kazimiera Janulaitiene, Algis Pauliukonis and Donatas Kazlauskas	973	L-Lysinamidase from Cryptococcus laurentii 112. Purification and properties
M. L. Kotler, S. A. Fumagalli, A. A. Juknat and A. M. del C. Batlle	981	Porphyrin biosynthesis in <i>Rhodopseudomonas palustris</i> —IX. PBG-deaminase. Kinetic studies
Aurora Galvan and Miguel Lucas	987	Ionic and substrate requirements of the high affinity calcium pumping ATPase in endoplasmic reticulum of pancreas
Zofia Kiliańska, Robert C. Briggs and Lubomir S. Hnilica	995	Specificity of non-histone protein antigens in chicken liver nuclei
John P. Harrington, Jan Stuart and Arlene Jones	1001	Unfolding of iron and copper complexes of human lactoferrin and transferrin
Ernest H. Creaser, Robyn L. Porter and John A. Pateman	1009	Purification and properties of aldehyde dehydrogenase from Aspergillus nidulans
		Vol. 19, No. 11
Minireview Ernst Malle, Hans Jörg Leis, István Karádi and Gerhard Max Kostner	1013	Lipoxygenases and hydroperoxy/hydroxy-eicosatetraenoic acid formation
General Papers Trine B. Haugen, Finn Olav Levy, Vidar Hansson and Per Fritzson	1023	Effects of cryptorchidism and orchidopexy on deoxyribo- nucleoside-activated nucleotidase (DAN) in the rat testis
Urmila M. Joshi, Kodavanti S. Prasada Rao and Harihara M. Mehendale	1029	Glutathione status in constituted physiological fluids containing albumin
S. Sarhan, F. Dezeure and N. Seiler	1037	Putrescine derivatives as substrates of spermidine synthase
Alga E. M. Jacobs, Arie Oosterhof and Jacques H. Veerkamp	1049	Palmitate oxidation and some enzymes of energy metabolism in human muscles and cultured muscle cells
Harold F. Deutsch	1055	Simplified methods for isolation of ubiquitin from erythrocytes. Generation of ubiquitin polymers
Reidar Wallin, Susan D. Patrick and Louis F. Martin	1063	Rat and human liver vitamin $K$ epoxide reductase: inhibition by thiol blockers and vitamin $K_1$
Rodrigues Gneno, Gérard Azzar, René Got and Bernard Roux	1069	Temperature and external electric field influence in membrane permeability of <i>Babesia</i> infected erythrocytes

Léa Razanamaniraka, Sylviane Tardivel, Zofia Porembska, Yvonne Dupuis and Gabriel Crouzoulon	1075	Phosphorylable proteins and alkaline phosphatase of brush border membranes from different parts of the rat small intestine
Jose A. Lupiañez, Francisco-Javier Adroher, Alberto M. Vargas and Antonio Osuna	1085	Differential behaviour of glucose 6-phosphate dehydrogenase in two morphological forms of <i>Trypanosoma cruzi</i>
Krešimir Pavelić	1091	Calmodulin antagonist W 13 prevents DNA repair after bleomycin treatment of human urological tumor cells growing on extracellular matrix
Hans-Jacob Haga, Knut-Jan Andersen and Miloslav Dobrota	1097	Latency of acid hydrolases in rat kidney cortex
C. Izquierdo, F. J. Burguillo, J. L. Usero and A. Del Arco	1105	Kinetic study of the inhibition of the amidolytic activity of thrombin by benzamidine and $N$ -dansyl-( $p$ -guanidino)-phenylalanine-piperidide (I-2581)
Jiann-Wu Wei and Edward K. Wang	1113	Effects of anticonvulsant drugs on calcium transport and polyphosphoinositide metabolism in rat cortical synaptosomes
H. C. Kirch, M. Lammers and A. M. Gressner	1119	Binding of chondroitin sulfate, dermatan sulfate and fat- storing cell-derived proteoglycans to rat hepatocytes
Toshiko Ukaji and Hiroshi Ashihara	1127	Effect of inorganic phosphate on synthesis of 5-phosphoribosyl-1-pyrophosphate in cultured plant cells
Angustias Page-Peñuelas, Joaquin Jimenez and Francisco J. Moreno	1133	Metabolic antagonism between insulin action and activators of adenylate cyclase in rat fat cells
Heini W. Dirr	1137	Solvent effects on the spectroscopic properties of aflatoxin $\mathbf{B}_1$
New Patents Section	i	
		Vol. 19, No. 12

Minireview		
Vincent J. Hearing and Mercedes Jiménez	1141	Mammalian tyrosinase—the critical regulatory control point in melanocyte pigmentation
General Papers		
María José Bonete, Mónica Lourdes Camacho and Eduardo Cadenas	1149	A new glutamate dehydrogenase from <i>Halobacterium halobium</i> with different coenzyme specificity
Anastasios D. Papaphilis and Helen E. Kotsifaki	1157	Effect of calcium on the binding in vitro of [3H]cAMP to synaptosomal membranes from rat brain
L. M. Sordillo, S. C. Nickerson, R. M. Akers and S. P. Oliver	1165	Secretion composition during bovine mammary involution and the relationship with mastitis
Janusz Z. Byczkowski and Teresa Gessner	1173	Interaction between vitamin $\mathbf{K}_3$ and benzo(a)pyrene metabolism in uninduced microsomes
Susan J. Sulakhe	1181	Hepatic adrenergic receptors in the genetically diabetic C57 BL/KsJ (db/db) mouse

Michael P. Ryan and Paul J. Higgins 1187 Discrimination between the nuclear lamin and intermediate filament (cytokeratin/vimentin) proteins of rat hepatic tumor cells by differential solubility and electrophoretic criteria Elba S. Vazquez, Ana Maria Buzaleh, 1193 Porphyrin biosynthesis in Rp. palustris-X. Purification and Eva A. Wider and some properties of Rhodanese Alcira M. del C. Batlle Elba S. Vazquez, Ana Maria Buzaleh, 1199 Soluble and immobilized Rp. palustris Rhodanese-II. Some Eva A. Wider and particular kinetic behaviour Alcira M. del C. Batlle M. Dobrzanska, B. Kroczynska 1205 Hybridization properties of non-polyadenylated oligo(U)and M. Tomaszewski containing RNA from germinating wheat embryos Leandro B. Rodriguez-Aparicio, Light-induced effects of several enzymes of carbohydrate Javier Rua, Dolores De Arriaga metabolism in Phycomyces blakesleeanus and Joaquin Soler Alistair T. R. Sim, Mark D. White 1217 Thiophosphorylation of skeletal muscle sarcoplasmic and Michael A. Denborough reticulum in porcine malignant hyperpyrexia Jiann-Wu Wei, Li-Ming Yang, 1225 Phospholipids and fatty acid profile of brain synaptosomal Synthia H. Sun and membrane from normotensive and hypertensive rats Chui-Liang Chiang Erik J. Frenkel, Bep van den Beld Influence of subunit composition of rabbit liver ferritin on its and Joannes J. M. Marx clearance from plasma Wojciech A. Turski and 1233 The effects of the main body cations on the peptidase(s) activity against <Glu6[125I-Tyr8]SP6-11 in the nuclear and Lilla Lachowicz synaptosomal fraction of the cortex and hippocampus of rat brain Krešimir Pavelić and Šime Spaventi Nerve growth factor (NGF) induced differentiation of human neuroblastoma cells **Book Reviews** 1241

